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ABSTRACT

Arguing that the study of use of personal space is an important aspect of understanding the total communication process in libraries, this document reviews the literature on personal space research that has been conducted over the last 20 years. Following a general review of the roots of such research, the numerous studies that are described are presented in eight categories as they focus on: (1) seating preferences in relation to the area of the room and proximity to other people; (2) the correlation between spatial proximity and certain attitudes; (3) use of study carrels; (4) the appropriateness of three-dimensional models of personal space; (5) dyadic boundary adjustments; (6) development of models of personal space (the stress model and the systems model); (7) cultural, sexual, and age differences with respect to the use of space; and (8) space utilization between dominant versus subordinate personalities, and acquaintances versus strangers. Most of the studies reviewed were conducted in libraries. Five pages of references conclude the paper. (THC)

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USE OF PERSONAL SPACE IN LIBRARIES : A REVIEW

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Public libraries are classified as "interactional territories" - areas where social gatherings take place. (Lyman and Scott, 1967). One of the four types of territories identified in human societies is the "interactional territories", the other three being the "public", "home" and "body territories". These categories are by no means mutually exclusive. "Home territories" can be established by individuals in "public" as well as in "interactional territories", i.e., favouring a special seat in a library. According to Stanford Lyman and Marvin Scott "interactional territories" have clearly marked boundaries and rules of access and agress - such as, libraries and theatres.

Corwin Bennett distinquishes [illegible] of spaces of temporary occupancy from long-term occupancy ones. "Generally, in libraries, public transit, waiting rooms, and cafeterias [all of which are temporary occupancy areas] the objective should be to foster isolation of the individual or the existing small group from others. The individual is here to study [as in the case of libraries]." (Bennett, 1977, p.60).

Edward Hall, anthropologist, identified four distance zones based on his research conducted in the northeastern seaboard region of the USA. These zones are: intimate, personal, social and public distances. Hall pointed out that different cultures exhibit different proxemic patterns, therefore, he cautioned that his research findings "are not representative of human behaviour in general..." (Hall, 1969, p.116). Yet, his classification categories can be used as a starting point in establishing cultural variations, by making the necessary adjustments to the proximity distances. Hall breaks down each of these zones into close and far phases, i.e., personal distance - far phase (2½' - 4'), social distance - close phase: (4' - 7'), and far phase (7' - 12'); whereas, public distance ranges between 12' - 25'

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for close phase, and 25' or more for far phase. (Hall, 1969, pp:113-130). These categories of proximity distances would apply to the social interaction taking place in public libraries.

Another relevant research study was conducted by a British physician, Humphry Osmond, in establishing the use of semifixed - feature space. H. Osmond observed that some space arrangements keep people apart, such as, seating arrangements in railway waiting rooms; he called such arrangements "sociofugal." On the other hand, he observed that space arrangements utilising drugstore style booths or tables at a French sidewalk cafe bring people together. He called the latter arrangement "sociopetal." (Osmond, 1957). The tests on his hypothesis were carried out by Robert Sommer, a psychologist. Sommer studied the seating patterns which are most condusive for conversation at a newly built "model" female geriatrics ward's cafeteria in Saskatchewan, Canada. Fifty observations were analyzed. The results indicated that conversations between people sitting in cross-corner arrangement were twice as frequent as the side-by-side seating. The least frequent exchanges were recorded at across-the-table seating arrangements. Hall, however, cautions that results of this research may not by universally applicable:

> "That is, across-the-corner - at right-angles is conducive only to: (a) conversations of certain types between (b) persons in certain relationships and (c) in very restricted cultural settings. Second, what is sociofugal in one culture may be sociopetal in another. Third, sociofugal space is not necessarily bad, nor is sociopetal space universally good. What is desirable is flexibility and congruence between design and function so that there is a variety of spaces, and people can be involved or not, as the occasion and mood demand." (Hall, 1969, p.110).

Hall sums it up stating that: "The main point of the Canadian experiment...[was] its demonstration that the structuring of semifixed-features can have a profound effect on behaviour and that this effect is measurable." (Hall, 1969, p.110).

Robert Sommer's next research project is more elevant to space utilisation in libraries, as it was based at a mid-western American university's library. The research project

took two years, during which period personal space was studied systematically. Part of the study was conducted in university library's high-ceilinged study room with book-lined walls.

> "Because this is a study area, students typically try to space themselves as far as possible from one another. [The subjects in this study were all females]. Systematic observations over a two-year period disclosed that the first occupants of the room generally sat one to a table at end chairs... sitting alone with at least one book in front of them and empty chairs on either side and across. In other words, the...[subject] was sitting in an area surrounded by empty chairs, which indicated something about her preference for solitude as well as making an invasion relatively easy. The second female to meet these criteria in each session and who was visible...[to the observer] served as a control. Each control subject was observed from a distance and no invasion was attempted. There were five different approaches used in the invasions - sometimes ...[the observer/invader] would sit alongside the subject, other times directly across from her, and so forth. All of these were violations of the typical seating norms in the library, which required a newcomer to sit at a considerable distance from those already seated unless the room was crowded." (Sommer, 1969, p.35).

The last statement is a statement of "code" in a semiotic sense. When this code was broken the subject departed. The quickest departures were resulted when the adjacent chair was pushed closer to the subject and then occupied. The signs sent by the invaded subjects were too varied to categorise.

> "There were wide individual differences in the ways the... [subjects] reacted - there is not single reaction to someone's sitting too close; there are defensive gestures, shifts in posture, and attempts to move away. If these fail or ignored by the invader, or he shifts position too, the...[subject] eventually takes to flight." (Sommer, 1969,p.36).

In another experiment conducted at the Ossining (New York) Public Library, it was discovered that it took only five minutes to "dislodge a subject." (Cohen and Cohen, 1979, p.16).

However, visual invasions "or attempts to dislodge someone from his place by staring directly at him" were less effective in the library experiment since the subjects were able "to lose themselves in their books". (Sommer, 1969, p.36). Another interesting point is made by R. Sommer regarding spacial invasions:

> "The library studies made clear that an important consideration in defining a spacial invasion is whether the parties involved perceived one another as persons. A nonperson cannot invade someone's personal space any more than a tree or chair can." (Sommer, 1969, p.37)

The seating arrangements in libraries can be staged to secure privacy. As R. Sommer observed:

> "Few places make as strict a demand upon the physical setting to guarantee privacy as the library reading area. It is one of the few places where interaction between people is actively discouraged... There are library patrons who like to chat while they read and prefer to have refreshments close by, and new libraries often contain special rooms to satisfy the needs of gregarious readers as well as to get them out of the way of people who prefer quiety and solitude." (Sommer, 1969, p.45).

The arrangement of fewer chairs around reading tables can be considered as a strategy to guarantee privacy of readers in libraries.

Robert observed that library readers protected their privacy in the following ways: (a) by occupying a corner location - this conveyed "a different meaning to a new-comer than one in the centre of the room". (Sommer, 1969, p.45); (b) by posture "whether he spreads out his belongings ' as if he owned the place', or pulls himself in to take up as little room as possible. Gesture can also be used to defend a given area, a person indicating by his expression that he is receptive for company or prefers to be by himself". (Sommer, 1969, p.47). Corners, alcoves make keeping off the invaders easier, on the other hand, "To sit in the middle of a long table will protect the entire table against timid invaders who will shrink away rather than risk the occupant's displeasure, yet aggressive intruders will be able to surround the occupant on all sides, something that would place him in an extremely uncomfortable position". (Sommer, 1969, p.48).

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However, protection of personal space in libraries does not take the form of a violent display, i.e., "Overtly aggressive reactions to the approach of a newcomer, such as, profanity, insults, or physical assault, rarely occur in a library where norms for individual privacy are well established." (Sommer, 1969, p.47).

Establishment of "home territories" in "interactional territories", such as, libraries - i.e., seat reserving strategies, were included in R. Sommer's university library observations. The objects, or signifiers, used by library users were mainly books and coats which functioned as territorial markers.

The researcher began her observations at times of relatively low room density, i.e., " an average of two or three people at each 12-chair table" (Sommer, 1969, p.53) and was discouraged about the lack of "results":

> "In 22 trials with markers ranging from notebooks to old newspapers, the territory was invaded only three times - twice when an old newspaper was used and once when a paperback book was left on the table. The implication is clear that at low densities almost any marker is effective in reserving space." (Sommer, 1969, p.53).

However, in order to be perceived as a territory marker, the signifying object should be perceived as such - and not mistaken as a litter or as a library material left behind for shelving. Acceptable signifiers would need to possess some intrinsic value, such as, a pair of reading glasses, a coat or a purse, "or any other object that the owner would not discard without cause". (Sommer, 1969, p.53). Thus, signifiers without dollar value or a personal signification were not successful as territory markers, i.e., "an empty matchbook, candy wrapper, or section from the previous day's newspaper". (Sommer and Becker, p.53).

To the contrary, such signifiers may attract people to a seat acting as non-territory-markers. (Sommer, 1969,p.53). The effectiveness of territory marking signifiers was considerably lower during high room density times. At the end of a two-hour period all of the unmarked "control" areas were filled. The following markers were effective to reserve a seat, in decreasing order: a sports jacket, notebooks, text and pen = 120 minutes; magazines neatly piled in front of a seat = 77 minutes, (the same arrangement with a not-so-neat pile = 32 minutes). (Sommer and Becker, p.53).

The involvement of neighbours in defending a territorially signified or marked personal space was studied by Robert Sommer and F.O. Becker:

> "Each session took place at six-chair tables, three chairs to a side, where there was a single male student at one end of the table with two chairs alongside him (O-O-X). The experimentor then sat at the other end chair on the same side (X-O-X) and after a designated interval (either five minutes or 15 minutes) left a stack of three paperback books and walked away. After either 20 or 60 minutes, the second experimentor entered the room and asked the neighbour if the marked chair was taken." (Sommer and Becker, p.55).

Under the conditions of moderate room density, it was established that two-thirds of the neighbours defended the marked seat. It is interesting to note that although the length of time the seat was occupied had no effect on the defence of the marked seat, the length of the former occupier had been away had a significant effect: "When the former occupant had been away 20 minutes, 80 per cent of the neighbours defended the chair but when he had been away 60 minutes, this fell to 54 per cent." (Sommer and Becker, p.55). The findings can be summarised as follows:

" (a) a relatively impersonal marker was able to keep the space vacant,

(b) the legitimacy of the marker was supported by two-thirds of all neighbours, and

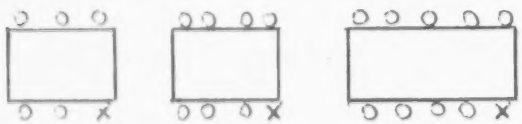
(c) the strength of the neighbour's defence was related to the length of time the former occupant had been away." (Sommer and Becker, p.55).

Robert Sommer concludes that territorial markers can create a serious problem for management of public areas - especially under moderate and heavy room density situations.

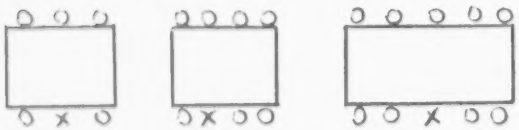
Some of Robert Sommer's research findings were based on questionnaires.

> "The first study used a three-page questionnaire; each page showing a diagram of a rectangular table with three, four, or five chairs per side. Twenty-four students were given <u>avoidance</u> instructions although the word itself was not used:
>
> > 'If you wanted to be as far as possible from the distraction of other people, where would you sit?'
>
> Twenty-one students from the same class were shown the same diagram and given the <u>offensive display</u> instructions without the use of that phrase:
>
> > 'If you wanted to have the table to yourself, where would you sit to discourage anyone else from occupying it?'" (Sommer, 1969,p.49)

The first groups of students chose the end chairs, whereas, the second group "almost unanimously" chose the middle chair. The diagrams which accompanied the questionnaire were as follows: (Sommer, 1969, p.40).



Optimal retreat positions.



Optimal positions for active defence.

Robert Sommer also wanted to explore the possibilities of seating preferences of people, in retreat versus active defence of personal space situations, by introducing several other control variables, i.e. a room with two rows of tables, aisles, and a door. He formulated two hypotheses for this

survey study:

> " (1) During the retreat condition people will gravitate to the end (wall) chair; in active defence they will make greater use of the centre and aisle chairs"... (2) students in retreat will face away from the door; during active defence they will face towards the door." (Sommer, 1969, p.50).

This time the instructions were increased to four, which involved retreat and active defence conditions into consideration in high and low room density conditions. The survey findings supported the hypotheses:

> "[For the first hypothesis] With the retreat instructions 76 per cent of the students chose a wall chair compared to 38 per cent during the active defence condition...[For the second hypothesis the results showed that there was]... a general preference in all conditions to sit with one's back to the door - 60 per cent of the total sample faced away from the door compared to 40 per cent who faced it. There was still a trend in the predicted direction since 44 per cent of the active defenders faced the door compared to 36 per cent of those in retreat." (Sommer, 1969, p.50).

Other findings based on Sommer's surveys data were the following:

(1) The preference for the chairs toward the rear of the room was dominant under all conditions: 79 per cent versus 21 per cent. This was especially so, under retreat conditions, during high room density.

(2) As compared with large tables (tables for 8 chairs) smaller tables (tables for 4) were preferred: 73 per cent versus 27 per cent.

(3) Tables with aisles on all sides were less frequently selected as compared to those placed against the wall: 38 per cent versus 62 per cent. (Sommer, 1969, p.50).

It is interesting to note that, in Sommer's research, responses collected under "high density" conditions as compared with to those obtained under "low density" conditions did not show any overall difference. However, room density influenced "retreat" conditions more than "defence of space" conditions, e.g.:

> "With high density and retreat instructions there was greater use of (1) the rear half of the room, (2) the tables against the wall, and (3) the chairs closest to the wall. It appears that the attribution of high room density increases the amount of physical retreat by those people who want to retreat, but has little effect on those who want to employ active defence." (Sommer, 1969, pp. 50-51).

The first occupant often chose an end table displaying a defensive behaviour - however, this may also indicate an anticipation (or experience) of future high room density.

In a more recent investigation, in 1972, by Fishman and Walitt of seating preferences in relation to the area of the room and proximity to other people was carried in the reserve room of the main library of Rutgers University, New Brunswick, New Jersey. One of the objectives of the study was to determine seating preferences at a six-person table. An examination of data in terms of middle seats versus end ones revealed that:

> "The percentages for both semesters in the reserve room were similar: fall term - 81.8 percent (ends), 18.2 percent (middle); spring term - 82.6 percent (ends), 17.4 percent (middle)." (Fishman and Walitt, 1972,p.287).

The data were analyzed in terms of the possible effect of the present of seated persons on incoming patrons.

> "This was analyzed with respect to the tendency to sit in the front or the back of the room. [Data were collected] for both the fall and spring

> terms on the percentages of the first people who sat in the front or back of the room during each observation.... Although the actual percentages of front versus back occupancy differ for the two semesters, there is a tendency for the percentage of people choosing the front section to be initially high and then decrease as more people enter the room." (Fishman and Walitt, 1972, p.289).

University of Cambridge Library Management Research Unit's survey,"Factors affecting the use of seats in academic libraries," revealed that although students were more tolerant to crowding it was not possible to fill each seat:

> "Tables designed to seat ten people appeared to be full when there were only six or seven people actually sitting there.... It was also noticed that there was a strong preference for single-seat tables. Single or even partitioned tables are more likely to influence the reader to make better use of the library seating by presenting them with an accurate impression of seating according to their stated preferences, especially privacy and working alone." (University of Cambridge Library Management Research Unit, 1975, p.271).

An overestimation of seat occupancy or its "crowding impression" is said to be, on the average, by about 15% higher than the actual case in another British study. (D.E.S. Architect and Building Branch, 1972).

Robert Sommer investigated the corrolation between spacial proximity and certain attitudes, namely, co-operation and competition. The study was repeated with round tables the second time, but the findings were the same:

> "Students overwhelmingly chose a corner-to-corner or face-to-face arrangement for casual conversation... The students selected a side-by-side arrangement for co-operative activity and explained that it was easier to share things that way. Competing pairs generally chose face-to-face seating, although some used a distant seating pattern." (Sommer, 1969, p.62).

Seating patterns on lounges and long benches were observed both in Cohen's and R. Sommer's studies: Cohens stated that: "In any library, research shows that rarely will more than two people sit on a three-seater library lounge, unless the people know each other. Strangers will sit as far apart from each other as possible". (Cohen and Cohen, 1979, p.27). R. Sommer's study was undertaken at a Berkeley, California bus stop:

> "Each [12 feet long] bench could conceivably accommodate six people (allowing two feet per person), but it was typical to find two people, one at each end, filling the bench to the extent that other people would stand around or sit on a nearby stone wall rather than occupy a centre position... It is noteworthy that the sex of the person seated at the other end of the bench was irrelevant to the second occupant. A male was just as likely to sit down at one end of the bench with a female at the other end as when a male was at the other end." (Sommer, 1969, pp. 65-66).

Cohen's findings on the other hand indicated that:

> "To converse while sitting on couches, people prefer to be opposite one another, as long as the distance between them is no more than about 5½ feet nose to nose. More than that distance apart, they move side by side. On the other hand, if people are only co-acting (they do not know each other), they will choose seats on couches that are far apart spacially and visually. When conversing at a rectangular table, most adults prefer to be opposite one another, so long as the distance between them is no more than 5½ feet. If the distance is greater, they move side by side. (At most round tables, perhaps because of the inability to sit a comfortable distance across from one another, most people prefer to sit side by side). These figures are important because many of the standard design texts place furnishings as far apart as 8 feet. If lounge seats in the library are not used as expected, this may be the reason." (Cohen and Cohen, 1979, p.27).

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At a University of California library usage of carrels was examined. The carrels were not only too narrow and claustrophic but were situated with their open backs on a passage way. Students refused to use them.

> "The carrels were positioned so close together and in such psychologically vulnerable positions that students not only refused to sit in them but also moved their chairs to other locations on the same floor where they felt more at ease." (Cohen and Cohen, 1979, p.21).

Cohens argue that: "A carrel with no protective barrier between the chair back and the walkway... will remain empty unless the walkway is rarely used, or the user needs only a small piece of information and will leave quickly. People like to sit with their backs and sides protected, all things being equal." (Cohen and Cohen, 1979, p.21).

This observation is clearly in disagreement with R. Sommer's finding regarding his second hypothesis which states that: "Students in retreat will face away from the door; during active defence they will face toward the door". (Sommer, 1969, p.50). The data collected indicated that "60 percent of the total sample faced away from the door compared to 40 percent who faced it.. [or] 44 percent of the active defenders faced the door compared to 36 percent of those in retreat." (Sommer, 1969, p.50).

By turning the chairs in the carrels to face the partitioning walls, thus protecting the backs would create a new problem according to E.T. Hall:

> "In restaurants, libraries, and public places, cutting down on movement in the peripheral stimulation should reduce the sense of crowding somewhat, whereas maximizing peripheral stimulation should build up a sense of crowding." (Hall, 1969, p.72).

Hall's statement indicates that "the closer the walls of any tunnel or hallway, the more apparent the movement". (Hall, 1969, p.72). Thus, the relationship of structure and movement is another aspect of semiotics of space planning in libraries.

According to Cohens when designed properly carrels can be ideal library furniture, because they are "behaviourally correct". Carrels may constitute up to 90 percent of small tables in a research library. Many public libraries also use carrels, usually 3" wide by 2" deep, which are not large enough to spread out. Carrels, nonetheless, provide each

> "person with his or her own marked-out territory and, because they are cubicles, they are not too claustrophobic. Besides, if the front wall of the carrel is 5 feet high, the seated individual does not have to look up and stare into the face of someone else. Most people do not mind other people's faces, but they do mind looking into the eyes of people they do not know (or do not wish to speak to). To look into another person's eyes is to invite that person to speak. People who go to the library for a particular study purpose often want to be left alone. They do not want to socialize. Thus, the carrel defines their territory, especially if they have a great deal of reading and writing to do, and gives them the isolation they require." (Cohen and Cohen, 1979, p.25).

However, the survey conducted by the University of Cambridge Library Management Research Unit to identify the "Factors affecting the use of seats in academic libraries", came up with a different finding regarding the use of carrels in university and polytechnic libraries: "Carrels, informal seating [i.e. chairs without desks] and seats in study rooms [i.e. library rooms with no books], periodical and reference rooms tended to experience lower use than other seats." (Cambridge Library Management Research Unit, 1975, p.272).

RESEARCH IN PERSONAL SPACE.

Edward Hall coined the term "proxemics" to define the study of space as a medium of interpersonal communication. His scientific study of space was originally based on his ethological research. His studies of spacial behaviour have been developed into a recognised body of research called "personal space." (Personal space is defined by him as the zone around an individual into which other persons may not trespass). However, others followed in his footsteps, most notably, Robert Sommer.

Robert Sommer's article titled "Studies in personal space" published in Sociometry in 1959 was declared in Current Contents June 13, 1983 issue as the week's "citation classic" after it has been cited in over 160 publications according to the Social Sciences Citation Index. Sommer explains why this article was so popular:

> "The reasons why the study was so frequently cited relate to the newness of the topic being investigated. The work filled a gap in social psychological theory which tended to overlook the physical conditions under which interaction takes place... Designers were eager for information that could help them create more effective and humane interior spaces. The study also had relevance to the growing interest in nonverbal communication." (Sommer, 1983, p.14).

More recent reviews of work in personal space are followed up by I. Altman (1975) and C.J. Holahan (1982).

Personal space has been compared to various shapes ranging from a bubble to a circular structure. Hayduk (1978) proposed a three-dimensional model of personal space as indicated in the figure below. According to Holahan, Hayduk's model is still speculative.

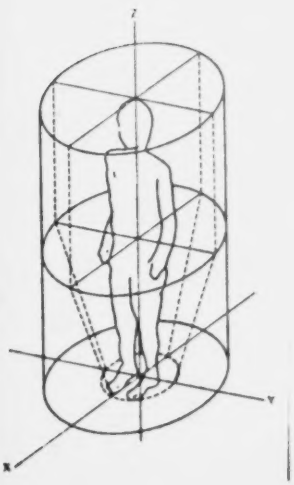
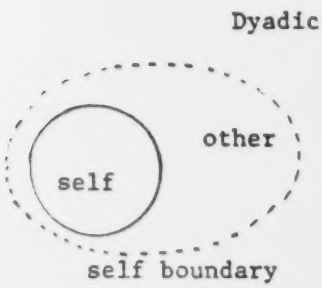


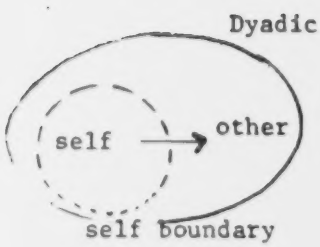
Figure 2.
Source: Leslie A. Hayduk "Personal space: an evaluative and orienting overview." (1978)

Altman introduced the notion of "boundaries" in regulation of interpersonal interactions. He maintains that by means of interpersonal boundaries or barriers people regulate their access to other persons. These boundaries function like cells - regulating its membrane responding to surrounding environment. (Altman, 1975).

Valerian Derlega and Alan Chaikin's (1977) research involved dyadic boundary adjustments. In the figure below. The top illustration indicates a "warding off" position, whereas, the lower one permits the passage of personal information by means of self-disclosure.



Non-disclosure: based on a closed self boundary and an open dyadic boundary.



Self-disclosure: based on an open self boundary and a closed dyadic boundary.

Figure 3.

Source: V.J. Derlega and A.L. Chaikin "Privacy and self-disclosure in social relationships." (1977).

Derlega and Chaikin pointed out that self-disclosure tends to be reciprocal. They also indicated that there is a positive corrolation between friendship and self-disclosure.

Space utilisation is often called as "territoriality". Charles J.

Holahan basing his concepts on Altman's themes defines Territoriality "as a pattern of behaviour associated with the ownership or occupation of a place or geographic area by an individual or group, and may involve personalization and defence against intrusions." (Holahan, 1982, p.256). Altman identifies three types of territory: (a) Primary territories (e.g. home); (b) Secondary territories (e.g. social clubs, neighbourhood taverns). Public libraries would fit best into this category, as this type of territory is open "to encroachment by a variety of users." Stanford Lyman and Marvin Scott (1967) labelled these "secondary territories" as "home territories" (e.g., a social club) when the degree of control is high and as "interactional" territories when the control is low; (c) Public territories (e.g. parks, public transport systems, restaurants or telephone booths).

Territorial defence decreases as it moves from primary territories to public territories. F.D. Becker and C. Mayo (1971) studied how people use spacial markers to mark territorial ownership in college libraries. Sommer and Becker's (1969) research took into consideration the degree of support provided by nearby neighbours in defence of marked space. Becker (1973) observed that in a college library students preferred sitting at "unmarked" tables; when they had to choose a marked one, time spent at such a table was much shorter.

However, Becker and Mayo (1971) speculate that in libraries as most claimants of marked spaces moved away when their spaces were invaded, markers served as barriers to identify comfortable interpersonal distances, rather than as stakes for marking territories. In other words, "territorial" claim would require a less passive behaviour. Edney (1974) however, states that active defence is not an essential aspect of territoriality. Threats to a person's occupied space in a library table probably may involve not only an invasion of territory, but also an invasion of personal space.

E. Hall's initial research in personal space was based on the premise that personal space is a medium of communication. This view is also supported in a later study by Pedersen and Shears (1973). R. Birdwhistell in his Kinesics and Context (1970) categorised a series of spine movements in an attempt to record nonverbal messages systematically.

Two models of personal space were developed by Gary Evans and Argyle. Gary Evans (1974, 1979); G. Evans and W. Eichelman (1976); G. Evans and R.B. Howard (1973) formulated the model of space based on the stress model. Whereas, Argyle and his colleagues conducted the earliest research on a systems model of personal space.

Physical closeness creates stress, whereas personal space boundary serves the individual against such stressful situations. Hall's (1966) "information overload" regarding the excessive proximity can also be seen as the stress model. Hall points out that temperature, visual cues and odours are increased when personal space is decreased.

The second model, the systems models of personal space, is based on a systems approach to personal space. The earliest research in this area was conducted by Michael Argyle and his associates in mid-1960's. Argyle's system model of personal space is based on the premise that: "personal space behaviours function as a system to maintain an optimal level of intimacy between people." (Holahan, 1982, pp.229-300). That is, if the personal space decreases, other contact features, such as body angle or eye contact is adjusted (or compensated) to make intimacy more confortable. Holahan calls this systems model "Argyle's compensatory model." Others, especially Patterson (1976;1978); Irwin Altman (1975) and Paul Greenbaum and Howard Rosefeld (1978) developed models that can also be considered in the category of "system models" of space.

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The spatial environment and use of personal space would vary according to: (a) culture , (b) sex, (c) age, (d) roles and relationships (i.e. dominant vs. subordinate; acquaintances vs. strangers). In the following section research findings in these areas will be examined.

Cultural differences

E.T. Hall (1969) and O.M. Watson and T. Graves (1966) examined the effects of culture on the use of personal space. Hall emphasised that culture and use of personal space is interrelated:

> "virtually everything that man is and does is associated with the experience of space. Man's sense of space is a synthesis of many sensory inputs: visual, auditory, kinesthetic, olfactory, and thermal... each is moulded and patterned by culture." (Hall, 1966, p.181).

Sex differences in use of space - between acquaintances and strangers:

According to David Canter's bus stop study women stand closer to other people than men do and both sexes stand closer to individuals of the same sex (Canter, 1974).

This finding is confirmed by Wittig and Skolnick (1978) who state personal space zone is greater for men than for women. Various other researchers confirm this: Aiello and Jones (1971), Pellegrini and Empey (1970) and Sommer (1959) all found that male-male dyads maintain greater interpersonal distance than female-female dyads. On the other hand, Duke and Nowicki (1972), Hartnett, Bailey, and Gibson (1970), Jourard (1966) and Kuethe (1962a, 1962b) have found that mixed-sex pairs maintain closer spatial proximity than same sex pairs.

S. Heshka and Y. Nelson also examined how relationship (acquaintance versus stranger) modified the effects produced by the sex of the participant in the use of personal space. They concluded that personal relationship (i.e., being an acquaintance or not) made no difference in distancing in all

male dyads, whereas, relationships involving women did. (Heshka and Nelson, 1972). This is also supported by Edwards (1972). M. Leibman also observed that women will sit next to a woman stranger rather than a male stranger. (Leibman, 1970).

Cohens state that "Men seem to be more expansive than women about personal territories in public... Law librarians report that freshman male students spread their books farther and take over more library table space than do female students." (Cohen and Cohen, 1979, p.20). A good summary of sexual differences in personal space is provided by Jeffrey David Fisher and Donn Byrne (1975).

Age and space utilisation:

Children, young adults, adult and older adults view personal space differently. (Cohen and Cohen, 1979, p.16). R. Sommer wanting to verify his proximity study in determining co-operative and competitive attitudes of people, conducted the same test with children.

> "Co-operating pairs sat side-by-side, competing pairs used a corner arrangement. Very few children sat directly opposite one another, a widely used arrangement in studies of adults, second only in popularity to corner seating. It is likely that a 30-inch distance across the table was a much longer psychological distance on the children's scale than it would be for adults." (Sommer, 1969, p.64).

In agreement with a previous study's findings, girls made use of side-by-side seating more than boys. (Norum, Russo, Sommer, 1967). As in Sommer's study Lorne Elkin also discovered that sitting across was not common among young children. (Elkin, 1964).

Children and young adults also prefer to work in groups, as reported by the Cohens "Most children's, young adults, or even college librarians are aware that many of their users work only in groups (often very raucous)... Small children

not only want to work at the same tables as their friends but they also want identical books. Conversely, in some elementary school libraries it is not uncommon to open a closet and find a child working happily away." (Cohen and Cohen, 1979, p.18).

On the other hand, "elderly people [who] do not hear or see as well.... may walk up to a stranger and stand too close. They may even steady themselves holding the other person's arms and hands". (Cohen and Cohen, 1979, p.18). However, this intimate distancing will take place if they do not feel threatened - as "Anxiety seems to increase distances between people". (Cohen and Cohen, 1979, p.18). In a non-threatening environment "Healthy elderly people are generally less inhibited than younger people. For example, in a library an elderly might seek out a sturdy chair. If the chair happens to be in another part of the facility, he or she will think nothing of dragging it to wherever it is the most comfortable. Older citizens might like the look of a soft deep lounge chair, but such chairs are usually difficult to get out of, so they generally prefer chairs that look sturdy and have straight backs." (Cohen and Cohen, 1979, p.19).

Various studies carried in this area indicate that there is curvilinear relation between the chronological age and distancing. M. Argyle and J. Dean also established that age is a factor in distancing. (Argyle and Dean, 1965). J. Aiello and T. Aiello (1974) observed that dyads of children aged between six to sixteen demonstrated a steady increase in distancing with age, males distancing themselves at greater angles than girls in general. A. Delong's (1970) study involved the interaction between the younger and the older people in institutional settings.

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> "Because of physical detoriation of the sensory equipment of the elderly individual, he comes to rely on different types of cues. An example from spatial behaviour is that the elderly tend to position themselves close to and at least at right angles to the other person and at times side-by-side when interacting." (Canter and Stringer, 1975, p. 145)

Heshka and Nelson (1972) measured dyadic distancing during informal casual conversations:

> "Based on this information this study supports the notion that the relationship between age and interpersonal distancing in curvilinear that is, both the younger and older groups maintain a smaller space between themselves than did the middle age groups. The important point is the range of ages of the dyads. None of the individual dyads had an age difference between members greater than seven years with the ages extending from 19 years to 75 years. The greatest distances were maintained around the 40 year old mark." (Canter and Stringer, 1975, p. 146)

David Canter summarises succinctly stating that:

> "age represents a sub-cultural characteristic in spacial behaviour with the different age groups using space differently. The role expectations for a person of a particular age, for example, his position and responsibilities emphasize that it is not just a variation in the presentation of information that is important but that this difference may result from the type of information that is revealed." (Canter and Stringer, 1975, p. 146)

As Hall points out, concept of "internalized fixed feature space" which is often learned in infancy, yet carried all throughout the life as "an internalization of how space is supposed to be" should be considered seriously in planning use of space in public libraries. (Hall, 1969, p. 106)

<u>Role and relationships (i.e. space utilisation between dominant vs. subordinate and acquaintance vs. stranger)</u>:

Cohens, commenting on the status and use of personal space state that:

> "the corporate/bureaucratic structure is extremely

> cognizant of personal space. The lowest level employee may receive only a simple desk, even without a place to put personal belongings. A middle-level manager may rate an office with a window, but the high-level executive usually works in a suite of rooms, sheltered from others by a secretary. On the individual level, law librarians know that one self-assured attorney working on an important brief can easily dominate an entire eight-seater table, preventing anyone else from being seated by artfully spreading out books and papers." (Cohen and Cohen, 1975, p.25)

Personal distancing between dominant and subordinate subjects were studied in a university library by Barash (1973). A person dressed in a lecturer attire (jacket and tie) sitting closely next to students produced more "flight responses" than by a person dressed in student attire (i.e. blue jeans and shirt).

Lott and Sommer's research (1967) indicate that persons of similar status sat closer to each other than to those people of higher or lower status than their own. In campuses, students sat in closer proximity to others with similar age and ethnic backgrounds. However, as Holahan points out contradictory research findings exist regarding the positive correlation between proximity and similarity based on Tesch, Huston and Indenbaum's research (1973).

Byrne found positive correlation between degree of similarity and closer proximity when a perceived similarity exists between people. (Allgeier and Byrne, 1973; (Byrne 1961, 1971); (Byrne and Buehler, 1955); (Byrne, Baskett, and Hodges, 1971); (Byrne, Ervin and Lamberth, 1970).

Friendship is an important variable in interpersonal distance between people. (Bass and Weinstein, 1971) and Guardo and Meisels (1971b) and Meisels and Guardo (1969). Cook (1970), Patterson and Holmes (1966) have found that extroverts sit closer to one another than introverts. Also, Mehrabian and Diamond (1971) reported that persons in need of affiliation or social contact with other people sat closer

to other people.

In turn, closer proximity between people help to foster positive interpersonal communication. Jourard (1970) discovered that in interview situations subjects became more self-disclosing as the distance between them was decreased. With the same token negative interpersonal feelings and dislike is associated with greater distance between people (Kuethe, 1964); Tolar and Salafia (1971) and Guardo and Meisels (1971a)

Observation of non-verbal language in occupying space in public libraries establishes certain codes, i.e. preferred seating arrangement in fostering privacy. Therefore, based on the objectives of function to take place in given space, seating can be manipulated to emphasise a sociofugal space or sociopetal one. (Cohen and Cohen, 1979, p.16):

> "A distinction among spaces and intentions for spaces needs to be made, as we're not always trying to accomplish the same end. The space may be intended to facilitate either social behaviour or individual behaviour. Generally, in libraries, public transit, waiting rooms, and cafeterias the objective should be to foster isolation of the individual or the existing small group from others. The individual is here to study... The need is for what has been called a sociofugal space - one which leads away from social activity." (Bennett, 1977, p.60)

The knowledge of codes regarding use of personal space is essential in arranging seating in a public library. Because, as Robert Sommer states: "From a practical standpoint, knowledge of how groups arrange themselves can assist in fostering or discouraging relationships. A library that is intended to be sociofugal space, where interaction is discouraged, requires knowledge of how to arrange people to minimize unwanted contact." (Sommers, 1969, p.72). It is important to understand how individuals utilise libraries, because "Lack of understanding about spacing mechanisms is responsible for tables and desks intended to accommodate

four or six persons per side.... but that appear 'occupied' when one or two people sit there..." (Sommer and Becker - as reported in Sommer, 1969, p.56).

Proxemics is a valid area of research in studying space. However, as Hall points out it is not easy to measure.

> "No single research technique is sufficient scope to investigate a complex, multi-dimensional subject like proxemics. The technique employed [in his The Hidden Dimension] is a function of the particular facet of proxemics under examination at a given moment." (Hall, 1969, p.171)

Hall in his research however is more concerned with "structure than content and more interested in the question of 'How?' than 'Why?' (Hall, 1969, p.171)

In order to add a further sociological dimension to the investigation of personal space utilisation in public libraries, we can apply Erving Goffman's study regarding "performances" given in "regions" i.e., public libraries. Goffman points out that Anglo-American society is a relatively indoor one and

> "when a performance is given it is usually given in a highly bounded region, to which boundaries with respect to time are often added. The impression and understanding fostered by the performance will tend to saturate the region and time span, so that any individual located in this space-time manifold will be in a position to observe the performance and be guided by the definition of the situation which the performance fosters." (Goffman, 1969, p.106)

The same would apply to Australian situation, especially in the case of transactions in public libraries.

Goffman divides regions into "front" and "back" regions.

> "Given a particular performance as a point of reference, it will sometimes be convenient to use the term "front region" to refer to the place where the performance is given. The fixed sign-equipment in such a place has

> already been referred to as that part of front called "setting". We will have to see that some aspects of a performance seem to be played not to the audience but to the front region." (Goffman, 1969, p. 107).

This concept is an especially interesting one to examine in relation to librarian-user and librarian-librarian interactions in front regions (i.e., reading rooms, reference/ information desk, circulation desk etc., whereas, back regions would be the technical processing areas where library materials are catalogued, classified, etc).

The use of personal space utilisation in "front regions" takes place in a setting with its "fixed sign-equipment" or seating arrangement.

> "The performance of an individual in a front region may be seen as an effort to give the appearance that his activity in the region maintains and embodies certain standards. These standards seem to fall into two broad groupings. One grouping has to do with the way in which the performer treats the audience while engaged in talk with them or in gestural interchanges that are a substitute for talk. These standards are sometimes referred to as matters of politeness. The other group of standards has to do with the way in which the performer comports himself while in visual or aural range of the audience but not necessarily engaged in talk with them. I shall use the term "decorum" to refer to this second group of standards, although some excuses and some qualifications will have to be added to justify the usage." (Goffman, 1969, p. 107).

As the literature in proxemics indicate various research findings exist, however, only a small percentage of this research has been related to utilisation of personal space in public libraries. Robert Sommer pointed out that library statistics are rich with statistical data on how many people come into the libraries and how many books are checked "there is a real gap in knowledge when it comes to what goes on during the reader's stay in the library." (Sommer, 1966, p. 235). Therefore, there is an urgent need to conduct further research in public libraries to understand the full

impact of communication processes in these libraries. The application of semiotic theory and "principles" to the "reading" of the communication processes in libraries would provide a sound research basis.

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